CLAIMS

1. A method of forming a field-effect transistor on a substrate, said method comprising steps of:

forming a high-k dielectric layer over said substrate;

forming a first polysilicon layer over said high-k dielectric layer, said first polysilicon layer being formed by utilizing a precursor that does not comprise hydrogen.

2. The method of claim 1 further comprising a step of forming a second polysilicon layer over said first polysilicon layer.

3. The method of claim 1 wherein said step of forming said first polysilicon layer over said high-k dielectric layer comprises utilizing a silicon tetrachloride precursor in an atomic layer deposition process.

4. The method of claim 2 wherein said second polysilicon layer is formed by utilizing a precursor that comprises said hydrogen, said first polysilicon layer preventing said hydrogen from interacting with said high-k dielectric layer.

5. The method of claim 1 wherein said first polysilicon layer has a thickness of between approximately 50.0 Angstroms and approximately 200.0 Angstroms.

6. The method of claim 2 wherein said first polysilicon layer and said second polysilicon layer form a gate electrode stack, said gate electrode stack having a thickness of between approximately 1000.0 Angstroms and approximately 2000.0 Angstroms.

7. The method of claim 1 wherein said high-k dielectric layer is selected from the group consisting of hafnium oxide and zirconium oxide.

8. The method of claim 1 wherein said step of forming said first polysilicon layer over said high-k dielectric layer comprises utilizing a physical vapor deposition process.

9. A field effect transistor situated on a substrate, said field effect transistor comprising:

a high-k dielectric layer situated over said substrate;

a first polysilicon layer situated over said high-k dielectric layer, said first polysilicon layer comprising substantially no hydrogen.

10. The field effect transistor of claim 9 further comprising a second polysilicon layer situated over said first polysilicon layer.

11. The field effect transistor of claim 10 wherein said second polysilicon layer comprises said hydrogen, said first polysilicon layer preventing said hydrogen from interacting with said high-k dielectric layer.

12. The field effect transistor of claim 9 wherein said first polysilicon layer has a thickness of between approximately 50.0 Angstroms and approximately 200.0 Angstroms.

13. The field effect transistor of claim 10 wherein said first polysilicon layer and said second polysilicon layer form a gate electrode stack, said gate electrode stack having a thickness of between approximately 1000.0 Angstroms and approximately 2000.0 Angstroms.

14. The field effect transistor of claim 9 wherein said high-k dielectric layer is selected from the group consisting of hafnium oxide and zirconium oxide.

15. The field effect transistor of claim 9 wherein said high-k dielectric layer has a thickness of between approximately 20.0 Angstroms and approximately 100.0 Angstroms.

16. A method of forming a field-effect transistor on a substrate, said method comprising steps of:

forming a high-k dielectric layer over said substrate;

forming a gate electrode layer over said high-k dielectric layer, said gate electrode layer comprising polysilicon, said gate electrode layer being formed by utilizing a precursor that does not comprise hydrogen.

17. The method of claim 16 wherein said step of forming said gate electrode layer over said high-k dielectric layer comprises utilizing a silicon tetrachloride precursor in an atomic layer deposition process.

18. The method of claim 16 said step of forming said gate electrode layer over said high-k dielectric layer comprises utilizing a physical vapor deposition process.

19. The method of claim 16 wherein said high-k dielectric layer is selected from the group consisting of hafnium oxide and zirconium oxide.

20. The method of claim 16 wherein said gate electrode layer has a thickness of between approximately 1000.0 Angstroms and approximately 2000.0 Angstroms.